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Probing the Surface of γ-Al_2O_3 by Oxygen-17 Dynamic Nuclear Polarization Enhanced Solid-State NMR Spectroscopy

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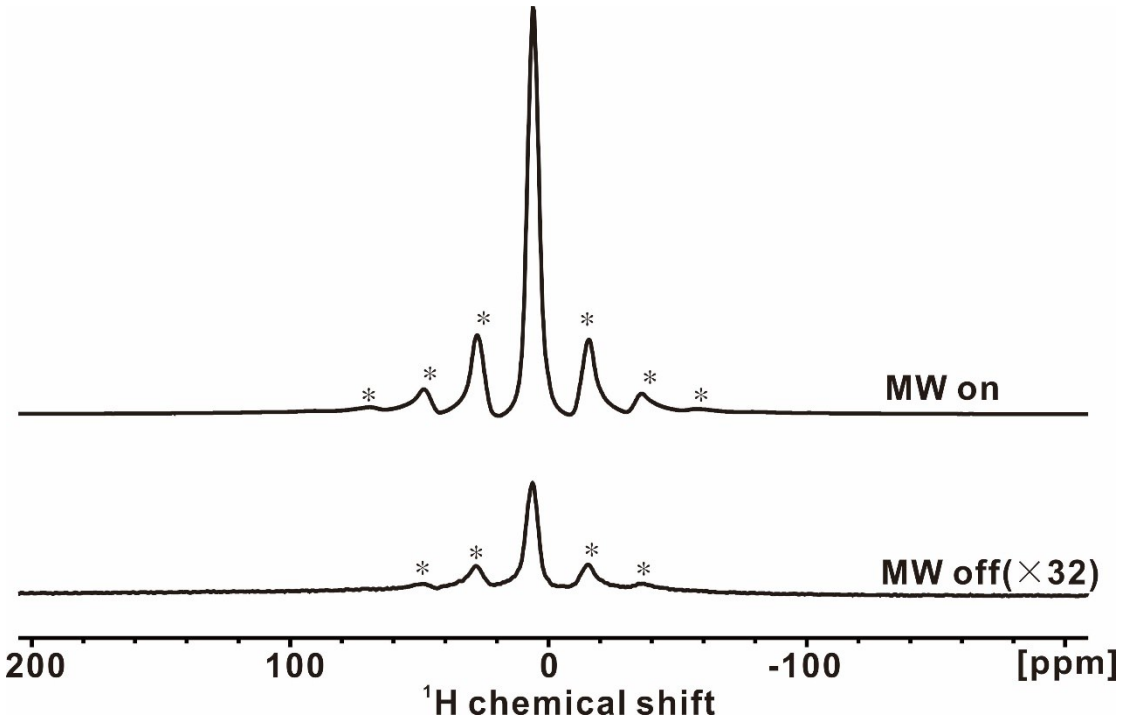

Figure S1. ^{1}H MAS NMR spectra of dehydrated γ-Al_2O_3 with microwave irradiation on (MW-on) or off (MW-off). A total of 4 scans were accumulated with a recycle delay of 10 s for each spectrum. The spinning speed was 8 kHz. * denotes spinning sidebands.

Table S1. Isotropic chemical shift δ_{CS} and second-order quadrupolar interaction parameter P_Q (where $P_Q = C_Q(1 + \eta_Q^2/3)^{1/2}$ and C_Q and η_Q are the quadrupolar coupling constant and asymmetry, respectively) of each oxygen species on γ-Al_2O_3(O) extracted from the 2D ^{17}O 3QMAS DNP spectrum. δ_{F2} and δ_{F1} represents the center of gravity of each specific species measured along direct dimension F_2 and isotropic dimension F_1, respectively, on the sheared 2D spectrum in Fig. 3.

Site	δ_{F2} /ppm	δ_{F1} /ppm	δ_{CS} /ppm	P_Q /MHz
Site 1	48.0	71.5	56.70	2.69
Site 2	68.4	69.6	68.80	0.61
Site 3	79.3	84.0	81.04	1.20

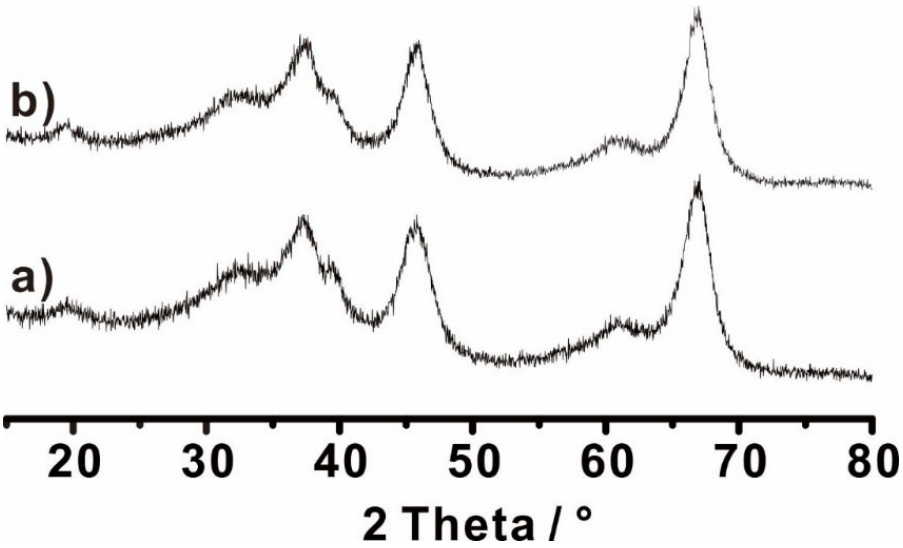

Figure S2. XRD patterns of parent γ-Al_2O_3 (a) and γ-Al_2O_3(O) (b).

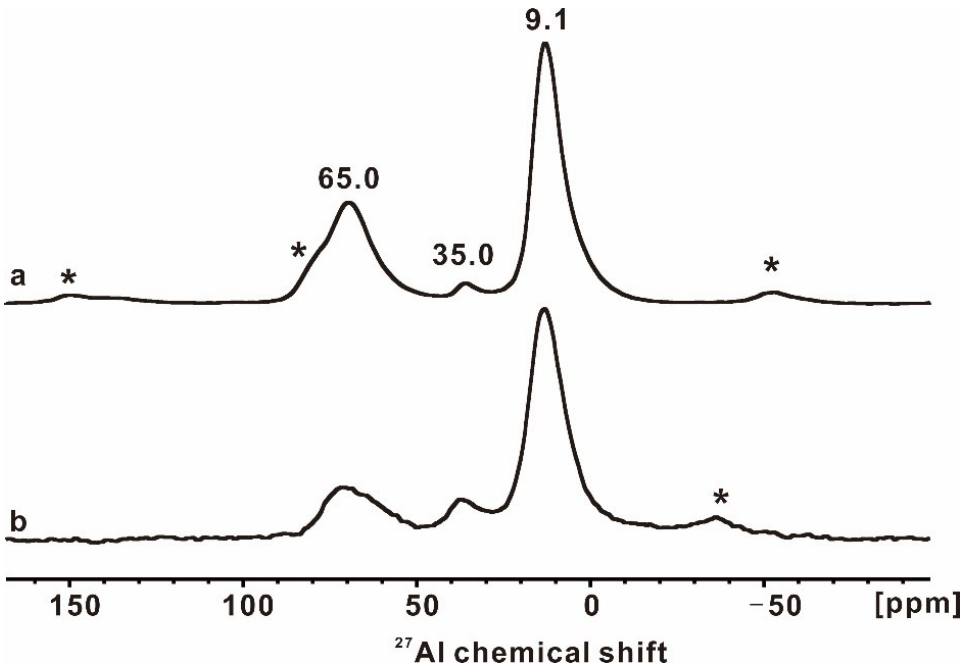

Figure S3. ^{27}Al MAS (a) and $^{1}H \rightarrow ^{27}Al$ CP/MAS (b) NMR spectra of γ-Al_2O_3(O). * denotes spinning sidebands. The spectra were recorded at 18.8T.